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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,617	03/01/2002	Kaneyoshi Takeyama	046124-5116	1808

23973 7590 09/06/2005

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EXAMINER

YE, LIN

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/085,617	<b>Applicant(s)</b> TAKEYAMA, KANEYOSHI	
	<b>Examiner</b> Lin Ye	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. U.S. Patent 6,537,211 in view of Sheldon U.S. Patent 3,676,671.

Referring to claim 1, the Wang reference discloses in Figures 13 and 14A, a weak light color imaging device (fluorescence endoscope imaging system) for capturing color images of the weak light (weak fluorescence signals, See Col. 2, lines 6-17) from a subject, characterized by comprising: illuminating means (white light illumination from a broadband Xenon arc lamp 352 as shown in 14A, see Col. 27, lines 59-65 or Xenon arc lamp 224 as shown in Figure 13, See Col. 26, lines 1-3) for illuminating said subject; exciting means (a 100W mercury arc lamp light source 302, see Col. 26, lines 14-27) for causing fluorescence to be generated by irradiating excitation light onto said subject; filtering means (rotating blue-green-red filter wheel 354 and red filter 310, see Col, 27, lines 59-67 and lines 23-25) for respectively transmitting the red, green and blue wavelength components of the weak light from said subject; imaging means (CCD camera, see Col. 12, lines 28-35) for capturing images of the respective red, green and blue wavelength components of the amplified light

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from said subject; storing means (memory of the computer 338, see Col. 26, lines 55-60) for storing image signals of the respective red, green and blue wavelength components thus captured; converting means (video processor 334, See Col. 26, lines 53-55) for superimposing the image signals for said red, green and blue wavelength components stored by said storing means, and converting same to a color image signal (e.g., synthesize a color image from 3 monochrome images such as red, green and blue images, see col. 27, lines 60-63); monitoring means (342, See Col. 27, lines 4-10) for displaying said color image signal as a color image; and output varying means for varying the output of said illuminating means (e.g., the visible blue light may be removed from the illuminating means so as not to decrease the contrast of the fluorescence image, see Col. 28, lines 26-33). However, the Wang reference does not explicitly show a amplifying means for amplifying the light intensity of the respective red, green and blue wavelength components of the weak light from said subject as transmitted by said filtering means.

The Sheldon reference teaches in Figure 6a and 14, a fluorescence endoscope imaging system includes filtering means (color wheel 50, See col. 12, lines 67-70) for respectively transmitting the red, green and blue wavelength components of the weak light from said subject; amplifying means (image amplifying tube 120A, See Col. 26, lines 59-63) for amplifying the light intensity of the respective red, green and blue wavelength components of the weak light from said subject as transmitted by said filtering means. The Sheldon reference is evidenced that one of ordinary skill in the art at the time to see more advantages for the fluorescence endoscope imaging system including a image amplifying tube for amplifying the light intensity so that the system can easily amplify the contrast of the image

of the examined subject when the image has a very low brightness part (See Col. 26, lines 49-56). For that reason, it would have been obvious one having ordinary skill in the art at the time of the invention was made to modify the fluorescence endoscope imaging system of the Wang ('211) by providing a amplifying means for amplifying the light intensity of the respective red, green and blue wavelength components of the weak light from said subject as transmitted by said filtering means as taught by Sheldon ('671).

Referring to claim 2, the Wang and Sheldon references disclose all subject matter as discussed with respected to claim 1, and the Wang reference discloses characterized in that said output varying means varies the output of said illuminating means in such a manner that the intensity of the light from said illuminating means incident on said imaging means due to reflection or scattering by said subject is equal to or less than the light intensity of the fluorescence incident on said imaging means from said subject (See the Wang reference Col. 28, lines 20-33).

Referring to claim 3, the Wang and Sheldon references disclose all subject matter as discussed with respected to claim 1, and Wang reference discloses the characterized in that said filtering means transmits a greater quantity of said red wavelength component of the weak light from said subject than said blue and green wavelength components (e.g., as shown in Figure 14, additional red path is generated from the filter 310, see Col. 27, lines 23-30; and the reference reflectance image is only detected by the red-responsive pixels, see Col. 28, lines 24-25).

Referring to claim 4, the Wang and Sheldon references disclose all subject matter as discussed with respected to claim 1, and Wang reference discloses characterized in that said

filtering means transmits a greater quantity of said red wavelength component of the weak light from said subject than said blue and green wavelength components, by transmitting said red wavelength component for a longer period of time than said blue and green wavelength components (e.g., as shown in Figure 14, additional red path is generated from the filter 310, see Col. 27, lines 23-30; the reference reflectance image is only detected by the red-responsive pixels, the blue light removed from the illumination means and green exposure period is not generally used; so the red wavelength exposure period is a longer period that including a normal red exposure period and UV red exposure period as the slight amount of red tissue fluorescence seen in abnormal tissue due to the UV excitation, see Col. 28, lines 3-30).

Referring to claim 5, the Wang and Sheldon references disclose all subject matter as discussed with respect to claim 1, and Wang reference discloses characterized in that said filtering means transmits a greater quantity of said red wavelength component of the weak light from said subject than said blue and green wavelength components, by transmitting said red wavelength component at a higher transmissivity than said green and blue wavelength components (e.g., only the reference reflectance image is only detected by the red-responsive pixels, so transmitting red wavelength component at a higher transmissivity than green and blue wavelength components as the slight amount of red tissue fluorescence seen in abnormal tissue due to the UV excitation, see Col. 28, lines 3-30).

Referring to claim 6, the Wang and Sheldon references disclose all subject matter as discussed with respect to claim 1. However, the Wang reference does not explicitly show filtering means also transmits a wavelength component in the infrared region.

The Sheldon reference discloses that the fluorescence endoscope imaging system has the filtering means may transmits a visible color, or invisible light, such as infrared light or ultra violet. The Sheldon reference is evidenced that one of ordinary skill in the art at the time to see more advantages for the fluorescence endoscope imaging system including filtering means which also transmits a wavelength component in the infrared region so that the system has more flexible option to produce true or arbitrary color images of the examined part (See Col. 27, lines 45-55). For that reason, it would have been obvious one having ordinary skill in the art at the time of the invention was made to modify the fluorescence endoscope imaging system of the Wang ('211) by providing filtering means also transmits a wavelength component in the infrared region as taught by Sheldon ('671).

### *Conclusion*

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - a. Palcic et al. U.S. 5,827,190 discloses an apparatus and method for imaging diseases in tissue.
  - b. Martens et al. U.S. 5,363,854 discloses an apparatus for detecting anomalies of the skin.
  - c. Ravkin U.S. 6,169,816 discloses detection of fetal nucleated red blood cells.
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Lin Ye', with a stylized, flowing script.

Lin Ye  
Examiner  
Art Unit 2615

August 31, 2005